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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/712,931

11/13/2003

Kenji Fujiwara

82478-1900

9888

7590

10/05/2005

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EXAMINER

HODGES, MATTHEW P

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/712,931

Applicant(s)

FUJIWARA ET AL

Examiner

Matt P. Hodges

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-7 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

The Amendment, filed on 7/18/2005, has been entered and acknowledged by the Examiner.

Cancellation of claims 8-13 has been entered.

***Election/Restrictions***

Applicant's election without traverse of restriction requirement filed 6/28/2005 in the reply filed on 7/18/2005 is acknowledged.

***Information Disclosure Statement***

The information disclosure statement filed 6/21/2004 fails to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The information disclosure statement has been placed in the application file, but the information referred to therein has not been considered.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Anandan et al. (US 5,708,324).

Regarding claims 1 and 7, Anandan discloses (see figures 1a and 2a) a discharge lamp with an arc tube including a glass tube (1 and 2) wound around a central turning part along the central axis and a phosphor coating (6 and 8). The phosphor coating includes a first portion (6) in a first area that is thicker than a second portion (8) formed in the second area. The first area being at the back of the tube while the second area is near the front of the tube. (Abstract)

Regarding claim 5, Anandan further discloses the mass per unit area of the first portion is  $5 \text{ mg/cm}^2$ . (Abstract)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anandan et al. (US 5,708,324).

Regarding claim 4, Anandan discloses the device as claimed (see rejection of claim 1 above) but does not appear to specify the use of a phosphor density on the second portion being between 2 and 12 mg/cm<sup>2</sup>. Anandan does disclose the use of a density between about 0.5 and 1.5 mg/cm<sup>2</sup> for the second portion. (Abstract). However the applicant fails to identify the use of 2mg/cm<sup>2</sup> to solve any problem or yield any unexpected result that is not within in the scope of the teachings relied upon. Further Anandan recognizes the problem of phosphor absorption and discloses the use of a lower phosphor concentration in the direction of light emission. The particulars of the phosphor density would be dependent upon the selected phosphor inside the tube and as such would have been within the realms of an obvious modification for one having ordinary skill in the art to increase or decrease the phosphor as required through routine experimentation to discover optimum workable ranges. Thus It would have been an obvious design choice to one having ordinary skill in the art to use a phosphor density of 2mg/cm<sup>2</sup> in the device as claimed by the applicant, since such a modification would require only routine experimentation to find an optimum workable ranges of a known solution for a known problem.

Claims 1, 3, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anandan et al. (US 5,811,925) in view of Anandan et al. (US 5,708,324)

Regarding claims 1, 3 and 7, Anandan ('925) discloses (see figure 3) a discharge lamp with an arc tube including a glass tube wound around a central turning part along the central axis and a phosphor coating. Further the glass tube includes a central turning part and the tube is wound around that part to both end portions at the periphery of the device. Anandan ('925) does not appear to specify the use of a phosphor density that increases from the front of the tube

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towards the back of the tube however Anandan ('324), in the same field of endeavor, discloses the use of using an increased phosphor density on the back of the device and a thinner phosphor coating on the front of the device. (See rejection of claim 1 above). This advantageously increases the overall luminosity of the device. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the phosphor gradient as taught by Anandan ('324) into the device as disclosed by Anandan ('925) in order to advantageously increase the overall luminosity of the device.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anandan et al. (US 5,708,324) in view of Maya et al. (US 5,592,052).

Regarding claim 6, Anandan discloses the device as claimed (see rejection of claim 1 above) but does not appear to specify the use of a three-band phosphor coating. However Maya, in the same field of endeavor, discloses the use of three-band phosphor coatings inside fluorescent discharge tubes. The use of multi-band coatings advantageously allows for dynamic variation of color temperature and thus increased marketability. (Column 2 lines 5-10). Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the three-band phosphor coating as taught by Maya into the device as disclosed by Anandan in order to advantageously allow for dynamic variation of color temperature and thus increased marketability.

***Allowable Subject Matter***

Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 3, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 3, and specifically comprising the limitation of an arc discharge tube including a phosphor coating that is thicker on the rear side of the tube than on the front side of the tube and where the thickness of the phosphor coating increases from the turning part towards the glass tube end.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Anandan et al. (US 5,717,284) discloses the use of variable phosphor width depending on tube location.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matt P Hodges whose telephone number is (571) 272-2454. The examiner can normally be reached on 7:30 AM to 4:00 PM M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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ASHOK PATEL  
PRIMARY EXAMINER